The literature of osteogenesis imperfecta is given in full by Schmidt, "Pathologie d. Knocken," in Lubarsch's *Die Ergebnisse d. Allgemein Pathologie u. Pathologische Anatomie;* also in Ballentyne's book. That of fragilitas ossium may be found in Griffiths' paper in THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, vol. cxiii.

ERYTHEMA INFECTIOSUM.

BY HENRY LARNED KEITH SHAW, M.D.,
LECTURER IN PEDIATRICS, ALBANY MEDICAL COLLEGE, ALBANY, N. Y.

A FORM of eruption constituting in its symptom-complex a new exanthem was first recognized in Graz by Escherich. He had there an excellent opportunity to study rötheln during several epidemics, and was able to clearly differentiate another type of eruption which occurred about the same time. The clinical picture of rötheln as depicted in the literature has been clouded by the several different types of eruption and course of the disease which have been described. Those, however, who have had large experience with rötheln recognize it as having a distinct symptomatology which deviates only slightly from a certain definite type. The polymorphous forms heretofore described are most probably the result of wrong diagnoses. In no class of cases, perhaps, are so many mistakes made as in the skin eruptions of children. Escherich has rendered a distinct service by recognizing and classifying a separate exanthem which no doubt has long existed and has been masquerading under many names.

This disease was very accurately described by Tschamer[1] in 1886 under the name "Oerliche Rötheln." The appearance over the cheeks, the eruption on the outer surface of the arms, its absence over the neck and trunk, and the duration of the eruption puzzled him exceedingly. He recognized he was dealing with a very different type of eruption from rötheln, but came to the conclusion that his cases were an abortive form of German measles. He had thirty cases which were similar in all essential points. A few years later an epidemic of the same eruption appeared in Graz, where it accompanied an outbreak of measles. Tschamer's cases were observed during an epidemic of rötheln. This epidemic was described by Gumplowicz[2] in 1891 under the title "Casuistisches und Historische über Rötheln," in which he agrees with Tschamer in its being an abortive type of rötheln. He showed that measles conferred no immunity over this disease, and *vice versa.*

Tobeitz[3] in 1896 read a paper before the International Medical Congress in Moscow entitled "Zur Polymorphie und Differential diagnose der Rubella," and confirmed the observations and conclusions of Tschamer. He reported a number of similar cases which showed "a distinct departure from the general course of rubella." He claimed this polymorphism was characteristic of rötheln, and was produced by some change in the biology of the infecting organism effected by the season, surroundings, or some condition or idiosyncrasy of the individual. Escherich,[4] in the discussion following this paper, made the first claim that this form of eruption was not identical with rötheln, but was a disease *sui generis*. He had a further chance to study this disease during two epidemics in Graz in 1897 and 1899. Schmid,[5] one of his assistants, gave a full description of the disease and its essential characteristics in 1899. He had observed one hundred and twenty-one cases.

Stricker,[6] of Giessen, also described in 1899 in a local medical journal an account of an epidemic of "Die neue Kinderseuche in der Umgebung vom Giessen, erythema infectiosum." He was the first to name the disease erythema infectiosum, and this term was accepted and adopted by Escherich. A full description of forty-five cases was given by one of Stricker's students in an inaugural dissertation.[7]

Tripker,[8] a pediatrist in Coblenz, described in 1901 an epidemic of seventy cases under the title "Erythema infectiosum febrile oder epidemischer Kinderrothlauf." An analysis of his cases shows them to be identical with erythema infectiosum, although some were accompanied with a slight fever. An epidemic occurring in Berlin in 1901 was described by Feilchenfeld[9] under the name "Erythema simplex marginatum," which occurred in the same families and in about the same locality.

Plachte,[10] a dermatologist, observed an epidemic of this same exanthem which he described in 1904 as "Megalerythema epidemicum die Grossflecken, ein neues Kinderexanthem." He does not think the term erythema infectiosum is descriptive of the disease, as it could be equally well applied to scarlet fever or measles.

Heimann[11] reported before a meeting of Niederrheinischer Kinderärzte at Cologne an epidemic of this disease which occurred in Solingen in 1903. He would term it erythema infectiosum morbilliforme on account of the similarity of the exanthem with measles.

Pospischill,[12] the attending physician to the contagious pavilions of the Wilhelmina Children's Hospital, made a preliminary report in 1904 on "Ein neues als selbständig akannta akute Exanthem." He gives a clear and unmistakable description of erythema infectiosum which he finds is not infrequent in Vienna. He differentiates it positively from measles, scarlet fever, and German measles. Cases have been sent to him with a diagnosis of measles or even scarlet fever.

The full report of these cases appeared in the *Wiener klinische Wochenschrift* for June 23, 1904, and in this article Pospischill states that the cases formerly described by him as scarlatinoid and morbilloid were in reality erythema infectiosum, which he now recognizes as the diagnosis of his new exanthem.

The latest contribution on this subject is by Escherich,[13] who, in demonstrating two cases before the Gesellschaft für Aerzte, in Vienna, gives an historical review and the clinical features of this disease.

A careful perusal of the literature can leave no doubt that the form of eruption described independently by Tschamer, Escherich, Stricker, Plachte, Pospischill, and others is the same. These are all well-known men having a wide experience with the eruptive diseases of children. The priority of recognition as a separate disease entity belongs to Escherich.

A number of cases came to the out-patient department of the Annakinderspital in Vienna during the months of May and June, 1904, and through the kindness of Prof. Escherich I was enabled to study them. Dr. Henning, of the Allgemeines Krankenhaus, made the colored drawings from life, and also made moulages of the face and arm of one of the cases.

The description of erythema infectiosum has appeared only in the German literature, and this disease as such has not yet been recognized in America. The so-called "fourth disease," described by Dukes in 1900, differs in all essential respects, and will be considered later in discussing the differential diagnosis.

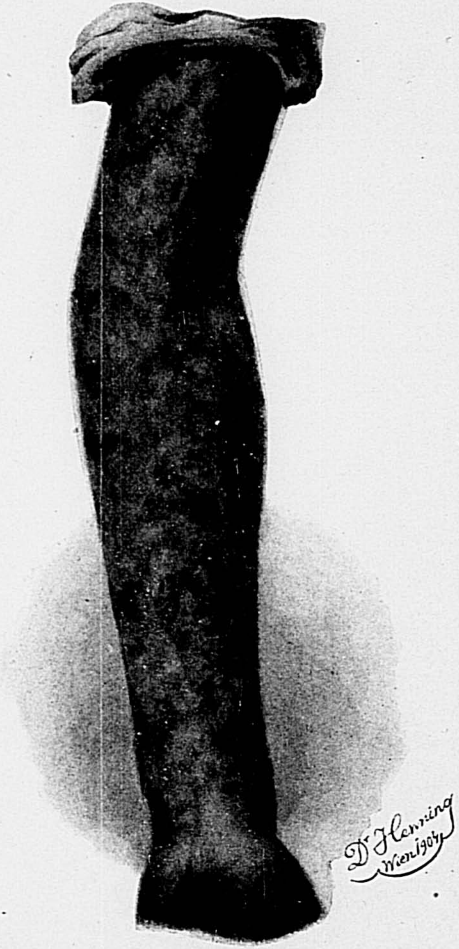
Erythema infectiosum may be defined as a feebly contagious disease occurring chiefly in children, with very slight subjective symptoms, and characterized by a maculopapular rose-red rash, more pronounced on the cheeks, legs, and outer surface of the arms.

The specific agent is unknown. The disease occurs in epidemics, and often follows an outbreak of measles or rötheln. It is found to spread through families, and a number of cases have been observed at the same time in schools and kindergartens. It is undoubtedly carried by contagion, but it is not so contagious as the other exanthemata. Cases have been taken in the wards of the hospital both in Vienna and in Graz, and no outbreak of measles or rötheln has resulted. An attack of any of the other exanthemata affords no immunity against erythema infectiosum.

The age most commonly affected is between four and twelve years. The youngest recorded case was in an infant, aged fourteen months, and several cases have been observed in young adults. It is essentially a disease of early childhood. Both sexes are equally affected. It occurs most frequently in the spring and summer months.

In cases where it was possible to make correct observations the period of incubation was from six to fourteen days. The disease may be ushered in by a slight feeling of malaise, weakness, and sore throat, but in the majority of cases the first symptom noticed is the eruption. This is the most important and often only symptom.

Erythema Infectiosum.



Erythema Infectiosum.

It appears invariably on the external skin, and no constant changes on the mucous membranes have been observed. A diagnostic feature of the disease is the character of the rash on the face, where it first makes its appearance. The cheeks are chiefly affected, and present a symmetrical rose-red efflorescence. The skin is hot to the touch, and is swollen, but it is not at all sensitive and does not itch. The color disappears on pressure, but quickly reappears. The whole appearance is suggestive of erysipelas. The eruption is confluent over the cheeks, and the edges are well defined, slightly raised, and distinct from the normal skin, but it may gradually fade on to normal skin. This area of confluent eruption is rather sharply limited in front by the nasolabial folds, and above by the temples. Laterally it extends to the angles of the jaws. The skin around the mouth appears pale in contrast to the livid hue of the cheeks. Discrete spots, varying in size from a pea to a hazelnut, are often seen on the forehead and chin. The rash fades from the face after four or five days. On about the second day the eruption makes its appearance on the body, where it is most marked on the outer surface of the arms and legs. The trunk is involved to a much less degree, and may be almost free, but in no case was the rash so intensive as on the face and extremities. The eruption spreads toward the periphery, and the hands and feet are the last portions of the body to be affected. On the extremities the exanthem is typical and characteristic. It is morbilliform in appearance, and not so deeply rose-red as on the face. The contour of the eruption presents frequently almost geographical outlines, and in many cases the appearance is suggestive of lacework, especially as it begins to fade at the end of the disease. On the inner or flexor surface of the arms the eruption is not nearly so intense. It is apt to become confluent around the outer surface of the elbow. On the legs the eruption is similar to that on the arms, and it is always especially well marked over the buttocks. The trunk remains comparatively free from eruption, although a number of discrete spots, sometimes crescentic in form, can be seen sparsely scattered over the chest and back. The rash is more macular than papular, and shows only a slight elevation, except on the face, where it is always raised. An evanescence is often observed which is perhaps peculiar to this disease. The rash will apparently disappear when some slight irritation to the skin, such as friction, exposure to cold, etc., will bring it out again in full bloom. The eruption is not followed by desquamation. It lasts from six to ten days, and does not leave any stains or markings such as are sometimes seen after measles. No hemorrhage results on pinching the skin as occurs in measles and scarlet fever. The lymphatic glands are not enlarged as a result or accompaniment of this disease.

The subjective symptoms are conspicuous by their absence. The tongue may be slightly coated, but it never presents the strawberry appearance and desquamation of scarlet fever. The conjunctivæ are not congested, and there is no coryza or cough. The urine is normal. The prognosis is absolutely favorable, and in none of the epidemics have any complications or sequelæ been observed. The disease is interesting chiefly from a medical point of view, and especially in reference to diagnosis. The care and welfare of the patient and the protection of other members of the family and of the community depend to a great degree on an early and accurate diagnosis of the acute exanthemata of children. The expense involved in the maintenance of quarantine, the services of a trained nurse, etc., is considerable, and a great injustice is wrought when a wrong diagnosis is made and a child unnecessarily placed in seclusion.

The disease most likely to be mistaken for erythema infectiosum is rötheln. This disease, curiously enough, was first recognized by the Germans toward the end of the eighteenth century, and hence is derived the name German measles. In this disease prodromal symptoms are not uncommon, and the rash spreads rapidly over the entire body, and especially on the chest and back. The rash appears first as small, discrete spots, somewhat larger than the punctate spots of scarlet fever, and smaller than the papular rash of measles. The favorite seats of the rash on the face are the region around the mouth, back of the ears, and on the forehead. The color of the eruption is pale pink. The lymph nodes, and especially those of the post-cervical group, are invariably enlarged, and while there may be only a few constitutional symptoms yet a temperature of 103° is not uncommon. The appearance, location, and spread of the rash in erythema infectiosum is entirely different. The lymph nodes are not enlarged, and in only a small percentage of the reported cases was any fever detected. During all three of the epidemics in Graz erythema infectiosum was often seen in children known to have had rötheln or measles. As it accompanied or followed outbreaks of these diseases, this point was easy to establish. As it not infrequently is associated with these diseases, the importance of the differential diagnosis is all the greater.

Measles can be excluded by the absence of all involvement of the mucous membranes, of all constitutional symptoms, and the uniform absence of the Koplik spots. The appearance of the rash on the arms and legs is strikingly similar to measles, and may cause a momentary confusion, but a further examination will clear up the diagnosis. The question of its being a second eruption of measles with atypical symptoms has been raised. This is not tenable, from the fact that erythema infectiosum very often occurs in children who have never had an attack of measles. It is more probable that the so-called recurrent attacks of measles are in reality cases of erythema infectiosum.

Scarlet fever should present no difficulties, although this diagnosis has more than once been made in cases of erythema infectiosum.

The throat symptoms, color appearance, and location of the rash, the constitutional symptoms, etc., have nothing in common with erythema infectiosum.

Erythema exudatum multiforme, which was first described by Hebra,[13] presents more similarity in name than in clinical features. Here the back of the hands and feet are first affected, while in erythema infectiosum the face is the first and most characteristic seat of the eruption. In the Hebra type the rash is first macular, then papular, and later vesicular, and the disease lasts for three or four weeks, and is generally accompanied with severe constitutional symptoms. It is never contagious, and can often affect the same person.

Pityriasis rosea presents some similarities in the skin lesion, but it seldom affects the face, is never contagious, and runs a chronic course of from eight to ten weeks.

Drug rashes, toxic and dyspeptic erythemas, can all be differentiated by the history. At first sight these rashes, especially the serum and toxic erythemas, are very similar to the rash of erythema infectiosum. The specific cause, the duration, location, and course of the eruption should remove any possibility of confusion. The same can be said in regard to urticaria, where the further absence of itching and of the characteristic wheal formation makes the diagnosis clear.

Very little has been heard of the fourth disease in the past two years, and the medical profession seems to have accepted Ker's verdict of "not proven." Any description of a new exanthem will at once recall the article of Clement Dukes,[14] which appeared in 1900, entitled "On the Confusion of Two Different Diseases under the Name of Rubella (Rose-rash)." The rash which is the characteristic feature of both diseases is very dissimilar. In the fourth disease the body is covered in a few hours with an extensive rash. The color is bright red, and from the character of the rash alone "it is impossible to distinguish it from scarlet fever." The face often remains free from any signs of the eruption. Profuse desquamation follows in a number of the cases. Without entering into a further discussion of this disease, it will be plainly seen that the essential characteristics of each disease are different. Ker,[15] of the Edinburgh City Hospital for Infectious Diseases, in discussing the question, "Is there a fourth disease?" said that he had long been prepared to hear that there was a new disease hitherto confounded with rötheln, but he could not be convinced that the fourth disease of Dukes met all the requirements. The disease I have endeavored to describe lies nearer to German measles than to the other types of recognized exanthemata, and may be the disease heralded by Dr. Ker.

The object of this paper is to call the attention of the American medical profession to a disease which has been described independently by several well-known pediatrists, and which has clinical features distinct enough to justify its classification with the acute exanthemata.

REFERENCES.

1. Tschamer. Jahrbuch f. Kinderheilkunde, 1886, Bd. xxix.
2. Gumplowicz. Ibid., 1891, Bd. xxxii.
3. Tobeitz. Archiv f. Kinderkrankheiten, 1896, Bd. xxv.
4. Escherich. Transactions of the Eleventh International Medical Congress, Moscow, 1896.
5. Schmidt. Wiener klinische Wochenschrift, 1899, No. 47.
6. Stricker. Zeitschrift f. practische Aerzte, 1899.
7. Berberich. Inaugural Dissertation, Giessen, 1900.
8. Tripker. Kalender f. Frauen und Kinderärzte, Kruznack, 1901.
9. Feilchenfeld. Deutsche med. Wochenschrift, 1902, No. 33.
10. Plachte. Berliner klinische Wochenschrift, 1904, No. 9.
11. Heimann. Jahrbuch f. Kinderheilkunde, February, 1900.
12. Pospischill. Wiener klinische Wochenschrift, 1904, Nos. 7, 25.
13. Escherich. Ibid., 1904, No. 22.
14. Dukes. London Lancet, July 14, 1900.
15. Ker. The Practitioner, February, 1902.

A CASE OF AMAUROTIC FAMILY IDIOCY.*

BY JAMES H. MCKEE, M.D.,

PROFESSOR OF CHILDREN'S DISEASES IN THE PHILADELPHIA POLYCLINIC, ASSISTANT PEDIATRIST TO THE PHILADELPHIA GENERAL HOSPITAL, ETC.

THE patient, Abe G., aged one year, was brought to the Children's Dispensary at the Polyclinic Hospital by Dr. Leo H. Bernd, September 15, 1902.

Family History. The mother is healthy, and had four sturdy children by a former husband. She has never miscarried. The father, too, has been twice married, his first wife dying in childbirth during her first confinement. The baby also perished. The patient is the first-born of the present union. There is no history of insanity, imbecility, tuberculosis, or syphilis in the family of either parent. The father has been out of work a great deal, and poverty has been the consequence. At times he has been unable to procure sufficient food for the family.

Personal History. The patient was born at full term, and was considered a normal baby. He was breast-fed during the first year. About four months ago he had considerable fever for a few days. Recently an eruption appeared over his body, but it disappeared very rapidly. Several months ago he fell from a chair, since which time, the mother states, he has been unable to properly support his head. His bowels have always been constipated, and he takes cold easily.

Status Præsens. He presents a square rachitic head, with a widely open, though not depressed, fontanelle. There are no teeth,

---

* Read before the Philadelphia Pediatric Society, June 7, 1903.